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THE LIVER IN BABYLONIAN DIVINATION

DURING the past two years there have appeared in the scientific journals of America and Germany series of articles on liver divination, resulting from the researches of Prof. Morris Jastrow, Jr., of the University of Pennsylvania. Especially valuable and full is the statement of this subject (*Vorzeichen und Deutungslehre*), in his *Religion Babyloniens und Assyriens* (10 & 11 parts),¹ which is a rewritten and enlarged edition of his English work on the same subject—practically a new work. Instead of preparing a general review of this important publication for the readers of RECORDS OF THE PAST, it occurred to me that a presentation of the results of Professor Jastrow's researches in connection with the liver in Babylonian divination, not only as they appeared in this work, but also in other scientific publications, would be preferable; and with this end in view the following summary of a general paper on the subject read by him before different societies is offered.

There were chiefly two methods employed by the Babylonians and Assyrians for the purpose of divining the future or ascertaining the will of the great gods, the one through the observation of the position and movements of the heavenly bodies—sun, moon, planets, and stars; the other through the inspection of the sacrificial animal.

¹*Die Religion Babyloniens und Assyriens*. Von Morris Jastrow, Jr. Published by Alfred Töpelmann, Giessen.

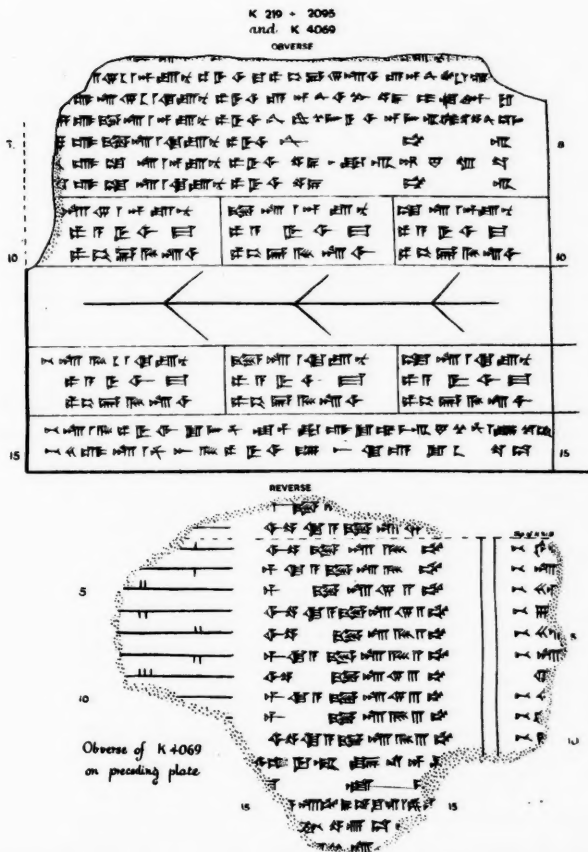
Both methods rested on an underlying theory, the recognition of which enables us to understand the persistent hold which both methods had upon a civilization that extended over thousands of years. The theory underlying the observation of the heavens was the belief that occurrences on earth were paralleled in the heavens. Therefore, if one could read the signs of the heavens, one had the key to an understanding of what was happening and what was going to happen on earth.

In the case of the inspection of the sacrificial animal, it may now be regarded as certain that the one organ which the Babylonian augurs observed was the liver, and that on the theory, for which abundant evidence is now forthcoming, that the liver was the seat of the soul and of life in general. Life being, according to the universal idea in antiquity, the gift of the gods, the liver thus became the organ of divine revelation. Through it the gods, as it were, communicated their purposes to men. If one could understand what the liver of the animal set aside for being offered up to the gods indicated, one had the guarantee of having, as it were, a peep into the workshop of the divine.

Starting with this theory, Professor Jastrow has shown that liver divination, or hepatoscopy, developed in the course of time into an elaborate science with more or less definitely defined sets of rules and governed by principles which, though they would not be regarded as scientific in our age, were yet followed with that consistency which marks the application of scientific principles in modern branches of investigation. The two main principles underlying the system of liver divination may be said to be, first, association of ideas, and second, association of words.

In liver divination the first step was to carefully note all the signs to be observed on the liver of the freshly slaughtered animal, generally a sheep. These signs included not merely the appearance of the various lobes of the liver, but any peculiarities to be noted in regard to the gall-bladder, the cystic and hepatic ducts, the portal vein, and more particularly the two appendixes attached to the upper or caudate lobe of the liver. Of these appendixes one which is finger-shaped and was known among the Babylonians as the "finger" of the liver, played a particularly prominent part in hepatoscopy; and it is interesting to note that among the Greeks and Romans, this same part of the liver appears with equal prominence in the system of divination which the Greeks and Romans received from the Etruscans.

Professor Jastrow illustrates this with a diagram of a sheep's liver, as showing the various parts of the liver observed by the Babylonians and Assyrians, together with the names of these parts and the cuneiform characters by means of which they were written. Great significance was also attached to the variegated markings to be found on the liver, which, due to various causes, were at times designated as holes or roads, and again fantastically compared with various kinds



OMEN TEXT, WITH ILLUSTRATIONS OF THE HEPATIC DUCT OF THE LIVER PREPARED FOR INSTRUCTION IN THE TEMPLE SCHOOLS OF BABYLONIA

of weapons. Pathological phenomena on the liver were also noted, and since diseases of the liver are common among sheep in a marshy district, like the Euphrates Valley, it is natural to expect that the phenomena noted by the Babylonian priests should represent largely pathological symptoms.

After all the signs and peculiarities on the liver had been noted, the second step, leading to the interpretation, had to be taken. As a guide for the priests called upon to explain the meaning of signs noted in the case of a sacrificial animal, large collections of omens were made, based in part on past experience in which the meaning of each and every omen was carefully indicated. The chief point was, of course, to determine in each case whether the omen was favorable or unfavorable.

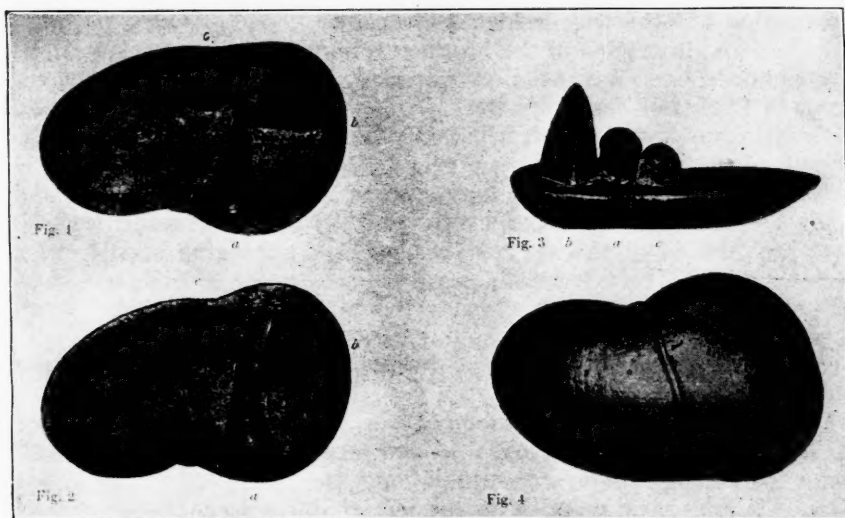
Since liver divination was resorted to largely for official purposes by the kings upon starting out on expeditions, or during the course of a military campaign, it is natural to find that the interpretation of omens bore primarily upon affairs of state, but it was a comparatively simple matter to adapt the application of the omens to any particular purpose for which the priest was consulted, whether of a public or a private character. The interpretation rested, as before indicated, chiefly on association of ideas and association of words. If, for example, the gall-bladder was swollen on the right side, it was looked upon as an indication that the king's power would be enlarged. The right side among the Babylonians as among most peoples, was the good side, and the left, the bad side. Therefore, if the gall-bladder was swollen on the left side it portended something that would be of advantage to the enemy, but not to yourself. Again, if the cystic duct was long it was interpreted as an omen that the days of the one making the inquiry would be lengthened out, or in the case of the king that he would have a long reign. Frequently, a pun or play upon the word describing the sign would form a sufficient basis for the interpretation. Thus, the word meaning to shine in Babylonian also means to be happy. Therefore, if a certain part of the liver was "brilliant" in its coloring, it was on the basis of this play interpreted as pointing to the happiness of the individual, the king, or of his armies.

Numerous illustrations taken from the omen texts are given by Professor Jastrow. He emphasizes, as a proof of the stronghold that this method of divination of the future had upon the Babylonians, the circumstance that we actually have among the tablets of the famous royal library at Nineveh, collected by King Ashurbanapal (668-626 B. C.), specimens of omens employed by Babylonian and Assyrian rulers from the days of Sargon, about 3000 B. C., down through the days of the Assyrian Empire to the last king of Babylonia, Nabonidus, who reigned from 555 B. C. until the conquest of the city of Babylon by Cyrus in 539 B. C.

Professor Jastrow also shows the great similarity between the Babylonian hepatoscopy and that which the Greeks and Romans followed. As is well known, the hepatoscopy of both the Greeks and the Romans rests upon the example of the Etruscans. A remarkable monument, found in 1877, near Piacenza, turned out to be a model of a liver in bronze, which shows the same general characteristics as a clay model of a liver with a Babylonian inscription obtained by the British Museum some years ago, and which was found near Bagdad. The Babylonian model dates from about 2000 B. C., that of Piacenza, from about the II or III century B. C.

From the Greek and Latin writers further evidence is forthcoming, which shows a similarity between the Etruscan and Babylonian methods that can hardly be accidental. Among the Etruscans, likewise, it was the liver that was the organ of revelation *par excellence*.

as Bouché-Leclercq recognized in his great work *L'Histoire de la Divination dans l'Antiquité*. The most recent investigations have shown that up to a comparatively late period, the liver alone was inspected by the Etruscans and Romans, while other parts of the animal like the lungs, heart, and intestines were only introduced into divination lore when they presented abnormal phenomena. It was the liver, however, which at all times served as the most important, and, in fact, as the essential medium for determining what the gods had in store for the state, for the ruler, or for the ordinary individual. The possibility of a direct relationship between the Babylonians and the Etruscans is thus opened up through this curious subject of hepatoscopy.



BRONZE MODEL OF LIVER FOUND NEAR PIACENZA, IN 1877. USED IN ETRUSCAN DIVINATION C. II CENTURY B. C.

Outside of the Babylonians and Etruscans, hepatoscopy is found also among people living in primitive conditions, like the natives of Borneo, who to this day on all important occasions when the future is to be divined, sacrifice a pig and inspect the liver, noting precisely the same phenomena, including the markings of the liver, that attracted the attention of the Babylonian priests. The conclusion to be drawn, therefore, is that liver divination is a primitive rite that survived among highly civilized people like the Babylonians and Etruscans, *because* it was developed into a pseudo-science through the persistent efforts and the ingenuity of the priests.

Another factor in accounting for the persistence of its stronghold is the belief upon which it rests that the liver is the seat of the soul. This belief gradually gave way to the later view, which placed the

seat of life and of the soul in the heart, while a third stage is represented in the more scientific view which assigned to the brain the most important functions connected with the consciousness of life. In Babylonian hepatoscopy we have no trace of the second stage; it rests clearly upon the earlier belief in the liver as the seat of life. In Greek and Roman divination, as already intimated, in later days, under the influence of the second stage, the heart and other organs were also introduced. While the third stage is not represented in any religious rite, it is interesting to note that it also found its expression in a pseudo-science which still survives at the present day, namely, phrenology, which in its essence is merely the application of hepatoscopy to another organ supposed to be capable of furnishing a revelation of otherwise hidden knowledge.

As an illustration of the interpretation given to the various signs noted on the liver, a translation is appended,—taken from the eleventh part of Professor Jastrow's work,—of the report given to Nabonidus, the last king of Babylonia, who ruled from 555 to 539 B. C., of the result of the inspection of the liver of a sacrificial animal—a sheep—made in connection with the king's inquiry of the gods Shamash and Adad, whether it was in accordance with the will of these deities who are the gods of divination *par excellence* that the king should, on a certain day of a certain month, begin the restoration of Sin's temple at Harran. No less than 17 signs are noted, together with their interpretations as follows:

"If the left side of the gall-bladder is tight, through thee the death of the enemy.

"If the *processus pyramidalis* (i. e., the finger-shaped appendix at one end of the caudate lobe), is well-preserved, things will go well with the sacrificer—he will enjoy a long life.

If a lymphatic gland is to the left of the *processus pyramidalis* and the *processus papillaris* (i. e., the smaller appendix at the other end of the caudate lobe) is large (?)—my safety against the enemy.

If the *processus papillaris* is wide—joy of heart.

"If there is a 'club' (i. e., a marking on the liver fantastically compared to a weapon of some kind) to the left of the *processus papillaris*—my army will do violence to the enemy's host.

"If in front of the bag (of the gall-bladder), there are two pronounced 'clubs' to the right, known as 'mighty storm' (i. e., a double marking resembling the weapon of one of the gods that bore the name of 'Mighty Storm'), then those who formerly hated will love, in place of hostility there will be reconciliation, the gods Sin and Shamash will protect my army and subdue the enemy, the gods formerly angered will be favorably disposed.

If the points of the gall-bladder are turned to the right—appointment (i. e., the appointment to an office may be safely made).

"If at the head of the cystic duct there is a 'club' and the cystic duct is tight, if, furthermore, the bag of the gall-bladder is smaller

on the right side and there is an incision between the lower and the upper points of the *processus pyramidalis*, and if the upper surface (of the *processus pyramidalis*) moves to and fro, the victory of my army will be complete, the suitor will gain his cause against his opponents.

If the upper part of the back of the liver protrudes on the right side, and if a liver-fluke has pierced the middle—the protector of the fame of my army will overthrow the strength of the enemy's army.

"If the upper part (of the *processus pyramidalis*) moves to and fro, and if the lower edge rides over the depression (i. e., the groove under the *processus pyramidalis*), and if the upper point of the liver (i. e., of the *processus pyramidalis*), is enlarged on the right side—joy of my army.



OMEN TEXT, WITH ILLUSTRATION OF VARIOUS FORMS OF THE FINGER-SHAPED APPENDIX OF THE CAUDATE LOBE

"If there is a lymphatic gland to the right of the liver-mass—salvation."

It will be observed that the interpretations do not bear on the inquiry at all, but that was not essential. The important point was to ascertain whether a certain sign was a favorable or an unfavorable one. In order to determine this the scribes of Nabonidus had recourse to the extensive collections of omens and their interpretation gathered on clay tablets for the temple and school archives, partly on the basis of actual experience, and partly based on the application of the principles underlying the Babylonian system of hepatoscopy to hypothetical cases. What Nabonidus lays before us, therefore, are extracts from these collections in which the signs observed correspond to those noted on the occasion specified in the inscription, while the interpretations which belong to totally different inquiries and represent

the answer to such inquiries made at one time or the other, are added as an indication merely, whether the sign is favorable or unfavorable. All the signs noted are, in fact, favorable, and hence the conclusion to be drawn from the liver inspection was that the gods approved of the day set aside by the king for beginning the restoration of the temple in question.

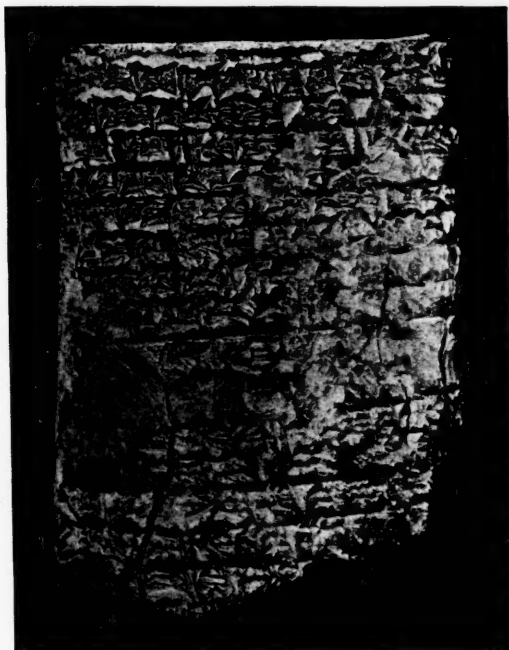
The general principles governing the interpretation of the signs noted can be seen from this example. The right side is the lucky one, the left the unlucky one. A firmly fastened gall-bladder points to a strong grip of something, since the left side represents the enemy. The circumstance that the gall-bladder is tight on the left side prognosticates that the enemy's army will be firmly clutched by the king's army. A well-preserved part of the liver points to well-being, and similarly, the broad surface of such a subdivision. Markings or "clubs," on the right side, are favorable signs pointing to success in war or to the general good will of the gods, and so forth.

On all important occasions, recourse was had to "liver" divination in order to assure one's self of the approval of the gods for any undertaking whatsoever, or in order to ascertain what the outcome of any event would be—military expedition, sickness, journey, and the like, as the case might be.

In the official archives of Babylonian and Assyrian rulers the reports of the priests were deposited and we are fortunate in possessing a considerable number of such reports. One of these dating from the Cassite period, was found at Nippur by the expedition of the University of Pennsylvania, the text of which I published in my *Documents from the Temple Archives of Nippur*, dated in the reigns of the Cassite Rulers (Philadelphia, 1906. Plate 3, No. 4). It represents a report sent to King Burnaburiash II (c. 1350 B. C.), in reply to an inquiry whether a certain "pious act"—perhaps the building of a sanctuary—in honor of Marduk, who had been angry, but who was now reconciled, would be acceptable to the god. The report begins with the announcement of the decision. Professor Jastrow's researches have enabled him to interpret this difficult text, a translation of which follows:

"The pious act of Marduk, as a rite for the appeased god—let him carry it out." There follows the justification for this favorable decision on the basis of the signs observed on the liver of the sacrificial sheep, as follows:

"A 'place' is there (i. e., there is a marking on the liver known as a 'place'), the hepatic duct is destroyed the 'good mouth' (the designation of the junction between the cystic duct and the common bile duct), is normal, the portal vein is normal, the lymphatic gland is there, the gall-bladder is tight on the right side, the right side of the *processus pyramidalis* is torn away, and the split at the rent made, is deflected above and below, the upper surface (*sc.* of the *proces-*



AN OFFICIAL'S REPORT OF THE EXAMINATION OF A SHEEP'S LIVER

pus pyramidalis), rides over the depression (below the *processus pyramidalis*), the base of the caudate lobe is sunk a liver-fluke is completely severed. Twelve signs of the sheep let him examine and send to Dur-Kuri-Galzu."

Dur-Kuri-Galzu—presumably near Nippur—is the official residence of the king to which the report was sent.

There are a number of signs which are clearly unfavorable, such as the "destroyed" hepatic duct, the "torn" *processus pyramidalis*, and the like. In such cases a second sheep was sacrificed and another inspection made. The second inspection is added and this apparently turned out favorably, and the report ends with the date. "Month Iyyar (i. e., 3d month), 12th day, 11th year of Burnaburiash in Nippur."

Professor Jastrow's researches are not without their bearings on the Old Testament. That the ancient Hebrews also at one time believed the liver to be the seat of the soul follows from certain passages in the Old Testament, upon which we can not dwell in detail here. They must also have known of the Babylonian rite which played so prominent a part in the cult as to give one the impression that the main purpose of sacrifice among Babylonians and Assyrians was to ascertain the will of the gods through the inspection of the livers of the animals slaughtered.

The Pentateuchal regulations are full of protests against the customs of the nations by which the Hebrews were surrounded—protests against sorcery and magic, against eating meat from the living animal, against taking interest, against marrying near relatives, and more the like. It would appear that these codes also contain an implied protest against Babylonian divination through the liver. In no less than 10 passages in the Pentateuch (Ex. xix: 13, 22; Lev., iii:4, 10, 15; vii:4; viii:16, 25; ix:10, 19), the ordinance is found providing for the burning of part of the liver of a sacrificial sheep, which is ordinarily translated “the caul above the liver.” This part is to be burned in the case of sin offerings and of guilt offerings, as well as of peace offerings, although the rest of the liver itself is permitted to be eaten. Now, a number of years ago, Prof. George F. Moore, of Harvard University, showed that the Hebrew term, literally “that which hangs over the liver” referred to the finger-shaped appendix of the caudate lobe. The Greek translation—known as the Septuagint—so renders it, as do the ancient Jewish authorities who describe the appendix as the “finger” of the liver—the very same term which occurs in Babylonian hepatoscopy.

To the question, therefore, why this piece of the caudate lobe should be burned, Professor Jastrow suggests as the answer that it is intended as a symbolical protest against the use of the liver for divination purposes. The Hebrew idea of sacrifice is that of tribute to Jehovah, but since the rite of sacrifice is not peculiar to the Hebrews, being, in fact, widespread in antiquity, the thought of emphasizing the Hebrew conception against other conceptions that were current would naturally be present in the minds of the Hebrew lawgivers and compilers of the codes.

Had these lawgivers desired to be perfectly consistent they would have ordered the entire liver to be burnt. They contented themselves, however, with the order to burn that portion of it which played so prominent a part in hepatoscopy that among the Greeks it was called “the lobe” *par excellence*, and among the Romans, “the head of the liver,” while in Babylonian divination it is likewise one of the most prominent, if not indeed the most prominent sign noted. Through the burning of this part of the liver, therefore, the warning was brought home to the people in connection with sacrifices of animals, not to divert the rite into a means of divination.

There are other phases of this interesting subject that could be touched upon, such as the bearings on the early history of animal anatomy, but what has been brought forward here will suffice to illustrate the wide scope of Professor Jastrow’s researches and their importance in not only throwing a new light on a wide series of ancient religious customs, but in furnishing an understanding of hundreds of cuneiform texts hitherto obscure.

ALBERT T. CLAY.

University of Pennsylvania.

ADOLF FURTWÄNGLER

ADOLF FURTWÄNGLER, the best-known classical archaeologist of the day, died in Greece suddenly on October 12. He was born in Freiburg, Germany, on June 30, 1853. After graduating from Munich University in 1876, he immediately began his remarkable career as classical archaeologist by an appointment to the Imperial German Institute, first in Italy, and then in Greece. At the excavations at Olympia he was present, and in 1878 he was actually in charge of this tremendous enterprise. In 1879 he was called to the University of Bonn, and in the next year to the Royal Museum in Berlin, where he left a few years later to accept sole charge of the Glyptothek in Munich, and to fill the professorship of classical archaeology. In 1901, without relinquishing his other positions, he began excavations in Aigina and Orchomenos.

Professor Furtwängler's first publication, *Pliny and His Sources Concerning Ancient Art*, appeared in 1877. Since then hardly a year has passed without books or articles issuing from his inspiring pen. The best known are: *Bronzes from Olympia* (1880), *The Gold Finds of Vettersfelde* (1883), *The Vases in the Antiquarium of the Royal Museum in Berlin* (1885), *The Collection Sabouroff*, a monumental publication, 1883-1887; *Mycenaean Vases* (1886), *Olympia, Results of the Excavations*, Vol. IV (1890); *Masterpieces of Greek Sculpture* (1893), *Copying Statues in Antiquity* (1896), *Catalogue of Vases in the Old Pinakothek, Munich* (1896); *Intermezzi, and Historical Studies* (1896), *Art Gems in the Berlin Museum* (1896), *Collection Sornzée* (1897), *Original Antiquities in Venice* (1898), *New Monuments of Ancient Art* (1900), *Ancient Gems, and History of Gem-cutting in Antiquity*, an epoch-making publication of astonishing learning and wisdom (1900); *Catalogue of the Glyptothek, Munich* (1900), and more recently his publications of the excavations in Greece and Orchomenos. This list takes no account of his contributions to the publications of learned societies.

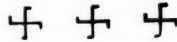
Adolf Furtwängler was an inspiring teacher. His wonderful mind grasped the minutest details and his equally remarkable memory stored them for ready use, but he had breadth of vision—discerned essentials. He knew his subject as no other. He was at home in every museum, in Boston as well as St. Petersburg; in Rome and Athens and Madrid, and all the public and private galleries of England. He knew the literature of his subject in its many ramifications, but his knowledge was essentially not book knowledge. He was kind and helpful to the beginner, but almost cruelly impatient of the mistakes of older men. He was, therefore, often attacked, and while he entered

manfully into the feuds forced upon him, he generally bore himself with dignity.

His untiring activity, his spirited writings, his eager and persistent search for more light on ancient art, his enthusiastic lectures, his versatility, and even at times his mistaken guesses as to the identity of statues, brought life into a study which was threatened with the death of self-sufficient acceptance of traditions. Until Furtwängler came one did not know how much there was still to learn of ancient art.

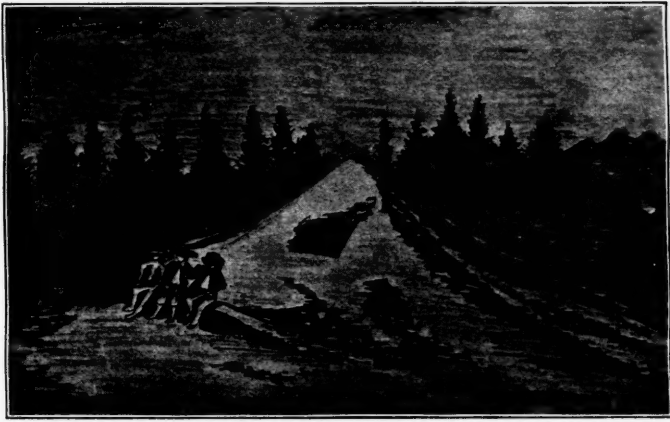
His admirers, and they are legion, believe that there never was and never can be a man of such learning in a special field, and of such inspiring personality as Adolf Furtwängler. And even his professional opponents, while disputing this or that theory, call him a great man. Europe and America have suffered a great loss in his death. Those who knew him and loved him are comforted at the thought that death claimed him in Greece, eager to the last to spread light over the scattered remains of antiquity. By his death, as well as by his whole life, he taught the nations to love and revere the memories of the glorious past of Greece and Rome.

EDMUND VON MACH.



MOUND-BUILDERS OF THE MISSISSIPPI VALLEY

WHEN we make a comparison of the burial mounds in the Ohio and Mississippi Valleys with those found in the Oriental countries we are led to the conclusion that the custom of burial of the dead and rearing a mound over them has prevailed for many centuries, and been quite universal on both continents, and that it has been practised by the Indians who lived in this immediate neighborhood to within comparatively recent years. As to the origin of the native tribes and peoples of America, as they were found at what we call the discovery of America, it was plainly to be seen that they did not all spring from the same primeval stock, but that different colonies reached the New Continent at various times from different parts of the earth, and the influx of human wanderers added to those already here and intermingled with them. This we can judge from the diversity of language, different degrees or kinds of civilizations, and above all, the mounds and other architectural structures they have left to tell us of the different races that have occupied this continent in bygone times. Whence they originally came is hard to say with any degree of certainty. One of the natural routes on the side of the Pacific is Behring Strait, only about 20 miles across, we can easily see how even primitive man could have been conducted or

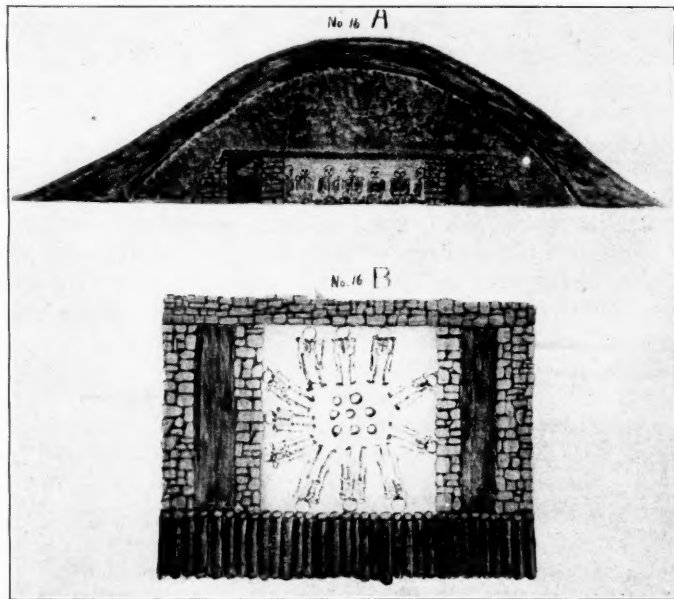


POMO COUNCIL CHAMBER, CALIFORNIA

cast across so short a distance, and it is more than probable that Behring Strait has been a channel of frequent migration from one continent to the other. The Japanese claim early settlement along the coast of Southern California, Mexico, and Central America, and no doubt there were many different and successive shoals of invaders. Not having any more direct record of the many invasions, which no doubt have occurred from time to time from this source, let us consider such evidences as may be at hand and make a comparison of similar conditions that have existed in times gone by, and as we find them to exist on both sides of the Pacific Ocean, and see if we can find a connection with or a remote relationship between the Orientals; Chinese, or Japanese, the Chukchee of Behring Sea, and still farther north, with those on this side of Behring Strait, Alaska, and the North American Indian. Let us trace them down the American side along the Pacific coast to Mexico and Central America, then across the narrow strip of land to the Gulf of Mexico to the mouth of the Mississippi River, then up that stream as far as St. Anthony's Falls, as well as up the Ohio River as far as Pittsburg.

I have in mind many things that point to similarity of ancient customs, particularly in the ceremony and burial of their dead, and the building of mounds over them, so very many of which are found along both sides of the streams, and on the high cliffs all along the Mississippi and Ohio Valleys. A recent writer has stated that he had discovered among the Chukchee of Asia, near Behring Sea and still farther north, a striking resemblance in size and features, as well as in language and customs to the Alaska and North American Indians. That their hieroglyphics, their totems, and many other things were very similar, and that he felt very sure that a relationship could be traced.

Commencing with the Orientals for comparison, we quote from an article on an *Ancient Manchurian Tomb at Mukden*. "In this province of the Chinese empire all graves are alike, the actual final resting place of an emperor not differing essentially from that of the humble coolie. All are mounds of earth, the difference in height indicating the difference in quality. All the grandeur of the imperial tombs at Mukden is expended on the entrances and outer courts. This grave of Chin is but a mound of lime-white earth, surmounted by a tree to mark it." Compare this Mound of Mukden, with the mound in Adams County, Ohio, and see the striking similarity; also note that the same custom and ideas prevailed among the Indians



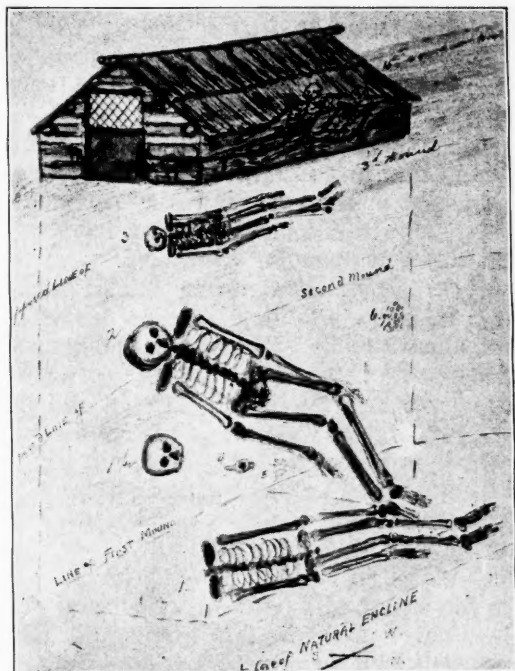
SECTION OF MOUND NO. 16, OF EAST DUBUQUE, ILL.

of this immediate neighborhood concerning the building of the mounds, that the higher they built the mound the farther they carried the earth or other material, and the more laborious it was to construct the same, the higher they considered the respect paid to the dead. [The tombs of the Ming dynasty, northwest of Pekin, show similar mounds of earth over the actual tomb, while the approach to the mound is very elaborate. See RECORDS OF THE PAST, Vol I, *The Ming Tombs*, pp. 99-107.—EDITOR.]

Mounds had also another significance; they were sometimes built and used as *Subterranean Council Chambers*. The Pomo tribe build a strange looking mound, the remarkable thing about which is that it

is hollow, and contains a large room, the floor of which is many feet below the level of the ground. The room is a subterranean Council Chamber in which the wise men and warriors of the Pomo tribe in California hold their *pow wows* to decide important questions relating to the public warfare. There is a square hole or scuttle, through which access to the interior of the mound is obtained, a ladder being used for descending.

In Mound No. 16, excavated on the top of the high hills here at East Dubuque, Ill., was found such a subterranean chamber built with stone walls and timbered, in which were seated around in a circle, 11



SECTION OF THE GRAVE OF DUBUQUE AND PEOSTA, THE
CHIEF OF THE FOXES

skeletons facing each other, with their feet toward the center, 8 earthen pots being deposited there.

In excavating for the foundation for the monument erected over the grave of Julien Dubuque, the first white settler on the bank of the river here, and pioneer lead miner of the West, in the erection of which the writer had an important part, we found this mound practically what might be termed 3 stories high, that is to say, there were 3 burials, at different times, the mound having been built higher each time, and finally when the United States Government first allowed the white settlers to occupy the ground on this side of the river, about the

year 1832, there was found a hut built over all this with a stone wall and a roof. In this were seated 2 more skeletons, facing toward the east.

Julien Dubuque, in honor of whom this monument [see frontispiece, August number, 1906, RECORDS OF THE PAST] was erected on the exact spot where he was buried by the Indians, was a French Canadian, who settled here in 1788. He lived with and was adopted by the Muskwakies of the Foxes at the "Little Fox Village," on the west bank of the Mississippi River, just below the mouth of the Catfish Creek. He was married to the chief's daughter, named Potosa; the chief's name was Peosta. He and Julien Dubuque became lifelong friends. When Julien Dubuque died, March 24, 1810, he was buried Indian fashion by the Muskwakies, and a mound built over him. The chief requested to be buried on the same mound with Julien Dubuque; his death followed several years later, about the year 1818. At his funeral he was placed upon the first-named mound in a sitting position and the mound built that much higher. Later 2 more followed in the same way, Potosa, the squaw wife of Julien Dubuque, being on the south side of the mound and somewhat apart from the rest. In the section given in the accompanying view, No. 1, is the skeleton of Julien Dubuque (except the skull), lying full length, facing toward the west, about 8 ft. below and almost under the north wall; No. 2, the Chief Peosta, about $2\frac{1}{2}$ ft. farther south and about $2\frac{1}{2}$ ft. higher up in a semi-sitting position; No. $1\frac{1}{2}$, the skull of Julien Dubuque, had been taken away from the rest of the skeleton and placed near the head of the chief, probably at the time of the chief's funeral; No. 3 is the skeleton of the squaw Potosa; No. 4 is the flat top catlinite pipe, a similar pattern to those used by the Alaska and Pacific Coast Indians, and by those around Behring Sea. At number 5 are 11 small, fine, sugar-flint arrow-points, all exactly alike.

This reminds me of an article I recently have seen in one of the papers, in which the writer said he is an Indian and a scholar, but he says, "the Indians never made the flint arrow and the spear-heads;" he says, "the Indians found them here." It does not seem clear to me that the Chief Peosta could have found 11 such beautiful little flint points all exactly alike, but I rather incline to the idea that they were made for him as something extraordinarily nice and befitting his rank, and that they were made especially for him and during his lifetime. Of course, I can realize that since the Indians were able to get steel points at the blacksmith's they dropped the manufacture of the more laboriously made and imperfect flint points—just about the same time that our forefathers dropped the flint locks on their guns for the more improved firearms.

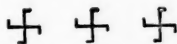
I have drawn attention before to their oriental custom of ancestral worship, the things belonging to their dead were not to be used by any other, they were held sacred as belonging to the dead; and this subject was not to be talked about to any foreigner, or perhaps

not even among themselves. At any rate there have been regular workshops, so to speak, found, where bushels of flint chips could be picked up that were flakes from the making of these points, and from their geological location, it has been determined that they were of comparatively recent deposit.

No. 6 is about a half a cigar box full of such chips, of which tradition informs us, "the Indians made yearly visits to this grave, and never failed to drop some small stones into it." I have these chips just as they were found in the grave and as indicated in the sketch.

RICHARD HERRMANN.

Dubuque, Iowa.



HUNTINGTON'S EXPLORATIONS IN CENTRAL ASIA*

MR. ELLSWORTH HUNTINGTON, in his recent book, under the title of *The Pulse of Asia*, gives the results, both geographical and archæological, of his two expeditions to that fascinating region of Central Asia bordering the "Roof of the World." It is the author's intention to present the geography of the region in its broadest sense, including not only descriptions of the physical aspects of the country, of its resources, geology, people, and their industries, but also to show, in so far as possible, the relation which the physical features of the region bear to the inhabitants, their mode of life, customs, and the direct and indirect effect which these conditions of environment have had in determining the present civilization of these various tribes and peoples.

For a discussion of geography from this point of view, there is no better area in the world than that traversed by Mr. Huntington, for here everything goes by extremes from depressions below sea-level to the highest plateaus and mountain peaks of the world, from absolute desert to well-watered mountain slopes. There is, further, abundant evidence of gradual climatic changes which have taken place, and thus increased the range of observations possible in tracing the effect of physical environment on peoples and their civilization.

We have space here to consider only a few of the many interesting historical and archæological observations recorded in this volume. One striking instance of the climatic changes which have been taking place was observed at Choka, a town situated at the base of the mountains southeast of Khotan. This was once the site of a moderate-sized city, which is now insignificant.

According to the natives, the water supply of the ruins came from the Choka Brook, flowing under the ground in the stone troughs of which pieces have been

*This article is composed of excerpts and condensed statements from Mr. Huntington's book on *The Pulse of Asia*.—*The Pulse of Asia*. A Journey in Central Asia Illustrating the Geographic Basis of History, by Ellsworth Huntington. Illustrated. Houghton, Mifflin and Company. 1907.

found. To-day the brook is too small to supply so large a town. The water supply can not have come from the Karatash River. To bring it to the ruins, 250 ft. above the stream, would require a winding aqueduct 10 miles long, cut much of the way in the face of almost perpendicular cliffs of red sandstone or of gravel, and carried across the mouth of at least one large tributary gorge. Such a piece of work would be out of all proportion to the size of the town, and would be an engineering feat utterly beyond anything, old or new, known to exist in Central Asia. Moreover, if such an aqueduct had ever existed, some traces of it would surely remain, and would be known to the natives. To bring water from the Choka Brook, on the other hand, would be an easy matter. The bed of the brook rises rapidly up the valley; the cliffs soon die out; and within 3 miles of the ruins, water could be led out of the brook and brought to the ruins by means of a simple ditch. The difficulty is that at present the Choka Brook suffices for only 12 families of peasants. A little water runs to waste in summer when the snow is melting on the Tikelik plateau, but in spring every drop is needed; and in winter the brook is said to dry up completely except for a few small springs.

Since the water supply of ancient Choka can not have come from the Karatash River, only two alternatives remain: either the Choka Brook was once larger than it now is; or by careful management a little stream, which to-day supports a dozen families of peasants, was made to support 50 times as many families of townspeople, who, of course, would require much less water per individual. The second alternative seems incredible, especially when the scarcity of water in winter is considered, but it is impossible to speak positively. It is scarcely probable that with the Chira, Genju, and Pisha Rivers close at hand, any government would have chosen to build the chief walled town of the district on a little brook, which, under the best circumstances, could provide barely enough water for drinking purposes. There is no ground for supposing that part of the brook has been diverted, or that it has grown smaller for any reason other than change of climate. If the climate was somewhat moister, and the brook larger, all difficulty disappears.

Mr. Huntington further notes as evidence of the change of climate that the present scanty population, now barely able to make a living in the surrounding region, must have been much larger in the past to support a city of the size of ancient Choka, which evidently had from 3,000 to 5,000 inhabitants. For, from its location, it could have been nothing more than an agricultural distributing station. It is probable that formerly a better supply of rain made pasture more abundant and thus there was supported a large "Kalmuck," or Mongol nomad population, of which there is a generally accepted tradition among the natives.

Before leaving this place Mr. Huntington made a detour eastward to Imamla, concerning which he says:

Imamla is the seat of a famous shrine, and I was anxious to visit it because I had heard that the sheikhs had a "tezgireh," or chronicle, relating the history of Choka. I went to the house of the chief shiekh, a most unpriestly young man, with a merry, boyish air, and two or three wives. As befitted so religious a house, the call to prayer, or some one of the 5 daily prayers, seemed to be in progress most of the time. Even the beggars attached to the shrine would pray for 5 minutes if one gave them a penny. Whenever one of the other 5 sheikhs came to call, he said, "Salaam," and at once opened his hands in prayer; and of course there were long prayers at meals. One might have thought himself in a monastery, if women had not passed through the courtyard now and again.



RUINS OF THE LAMASERY AT DANDAN-UILIK

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

The chronicle, which was owned by the sheikh, is said to have been written by one of the scribes of Yusup Khadir Khan Khazi, king of Kashgar, in 1000 A. D., at the time of the death of the Four "Imams," or "Saints," from whom the shrine takes its name. The Imams, so the chronicle says, came with the Mohammedan invaders to convert Khotan. As the Khotani "infidels" clung to the Buddhist faith, the four saints, by power of prayer, destroyed the city, then called Khal-khalimachin. Thereupon 12,000 people became Mahommedans, and built the new city of Khotan. Of the remaining pagan inhabitants, 17,000, with Nuktereshid-Chuktereshid, their king, came to Choka, and built the city, whose ruins I discovered. Forty years later, the Imams followed them, and naturally were refused admission. A man of Choka, however, who had secretly become a Mohammedan, came out by stealth, and led them to the water supply of the city. As the water flowed in an underground conduit, its exact course was not evident. The Imams prayed for guidance. At once a tree sprouted, grew to maturity, flowered, and produced fruit, a delicate red crab-apple, peculiar to the terrace villages. Knowing that the tree must grow from the water, they dug a hole, and found the conduit, and dropped into it a red crab-apple. The apple swirled round and round in the swift stream, and finally was sucked downward. Thereupon the water dried up. The city was forthwith abandoned, the people moving on eastward through Sai-Bagh and Nura to Imamla on the Ak-Sai River. Thither, in course of time, the zealous Imams followed them for the final combat. The pagan king was encamped higher up the Ak-Sai than were the few Mohammedans, and the water which came to the latter was polluted. The Imams dispatched a pious subordinate, whose fervent prayer caused the Ak-Sai to be diverted eastward into the Kara Su, where part of it still flows. This did not quench the ardor of the pagans, however, for soon after, when the Mohammedans were at their prayers, the host of Nuktereshid fell upon them and killed them all, including the Imams. Forty, however, came to life again, and returned to Kashgar. They persuaded the king of that country to send some families, who settled Imamla, Sai-Bagh, and Nura, which, till then, had been inhabited only by nomads. Nuktereshid and his people moved on southeastward to Polo, which is said to have been an important post, "because it lies on the Kalmuck road from Yarkand to Cherchen." There they were finally conquered by the Mohammedans.

The whole story is full of fantastic miracles and impossibilities, but the main

facts are historically accurate. The miracles—such, for instance, as the diversion of the Ak-Sai—are chiefly distorted explanations of real facts. The dates are open to question, for while the chronicle gives 1000 A. D. as the time when Nuktereshid ruled, Bellew gives 1095 A. D. Apparently, Choka was a provincial town in a district inhabited by nomads, and rose to importance only during the brief space when it became the capital of the Buddhist kings, whom the Mohammedans expelled from Khotan about 1000 A. D. The abandonment of the town was traditionally a withdrawal of the people without fighting because their water supply failed. Of course, the water supply may have been diverted by an enemy, as is said to have been done in the case of the Ak-Sai; but that does not explain where the water went, or why a town was ever founded with so diminutive a water supply as that now available, unless the climate were different.

Near Chira, Mr. Huntington began special investigations on the "climate of antiquity," which he considers in chapter VIII, under the title, *Sand-buried Ruins of Chira*. Concerning these, he says, in part:

The best point for beginning my investigations seemed to be a group of ruins, Uzun-Tetti and others, which lie in the zone of vegetation a few miles north and east of Chira, and another group, Dandan-Uilik and Rawak, which lie far out in the sandy Takla-Makan desert, 50 or 60 miles north of Chira. Stein, the only archaeologist who has visited the region, describes Dandan-Uilik, the chief of the ruins, as having been a large town with several religious establishments, either Buddhist lamaseries or temples. It was situated in the midst of an oasis, called Li-sieh, or Litsa. A considerable agricultural population was settled round about, as is shown by numerous remains of ancient irrigation works. Rawak, the more northerly town of the Litsa oasis, was probably abandoned about 300 A. D., while Dandan-Uilik itself, to judge from the evidence of manuscripts found in the houses, does not appear to have been finally deserted until a little before 800 A. D. "But," as Stein says, "the striking preponderance of religious buildings * * * suggests the possibility that these local shrines and their small monastic establishments continued to be kept up and visited, perhaps as pilgrimage places, for some time after the rest of the settlement had been abandoned. The condition in which Mohammedan Ziarets [shrines] are now often found beyond the present cultivated area of oasis would furnish an exact parallel." Stein concludes that "the lands of Dandan-Uilik were irrigated from an extension of the canals which, down to a much later date, brought the water of the streams of the Chira, Domokó [properly Dumuka], and Gulakhma to the desert area due south of the ruins * * * [where] the debris-covered site of Uzun-tati * * * can be proved by unquestionable evidence to have been occupied for at least 5 centuries longer. * * * A number of historical as well as topographical observations * * * point to the conclusion that the successive abandonment of both Dandan-Uilik and Uzun-tati was due to the same cause, the difficulty of maintaining effective irrigation for these outlying settlements." Hedin, on the other hand, believes that this can not be true for Dandan-Uilik and Rawak, of which he was the discoverer; they must have received water from the Keriya River, which now flows 26 miles east of the ruins, but in ancient times, so he supposes, was diverted to the west. * * * My investigations confirmed Stein's conclusion, and showed that the water supply throughout the whole region was formerly more abundant than now, and hence that in ancient times the climate must have been different. An account of my journey into the desert will show the reasons for this conclusion. * * *

We spent the first 7 days in circling about in the zone of vegetation. Within a few miles of Dumuka, along the north and south line of a former course of the Dumuka or Ak-Sai River, I discovered the waterless, sand-buried sites of 4 small villages, evidently the ancient Buddhist equivalent of modern Dumuka. The southern site, called by my guide Derevezeh Dung, is unimportant. * * * At



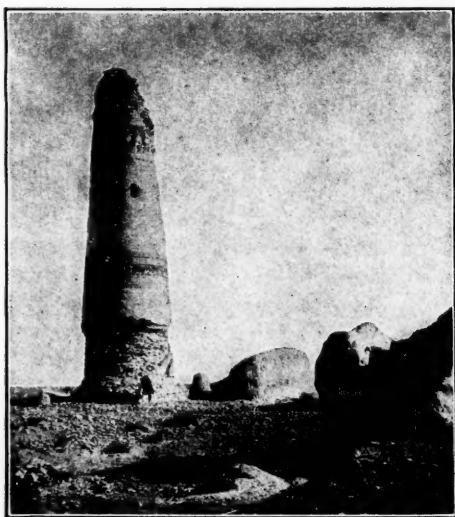
RUINS OF THE "STUPA" AT NIYA RIVER SITE

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

the next site, Kuk Jigdeh (Green Eleagnus Tree), as well as at Kushkusteh Dung, the one farthest to the north, we found some little clay heads of Buddha and some plaques with typical Buddhist figures, which show that the sites antedated the Mohammedan conquest in the X century. The other site, Khadaluk, appears to have been the center of the old town. In two places we found abundant votive tablets with heads of Buddha, and many fragments of painted plaster and gilded stucco, evidently the remnants of an old lamasery or temple. Apparently here, as at Dandan-Uilik, the most permanent structures, and probably the ones last to be abandoned, were of a religious character. We also found several Chinese coins, dating from early in our era, some fragments of paper bearing records in Brahmi script, and two pieces of wood covered with the characteristic Kharosthi script of the first three centuries of the Christian era. One of these [B, in the accompanying cut], bears on the reverse side paintings of a camel and other objects. Evidently, the 4 sites just described are parts of an agricultural district at least 4 or 5 miles long, and quite as large as modern Dumuka. The final abandonment of the ruins certainly took place before the Mohammedan conquest in 1000 A. D., and perhaps earlier.

About 8 miles north-northwest of Khadaluk, at Payet-Begning-Ilesi or Tetti-Gerim, I discovered another little site, with remains of tamarisk-walled houses, abundant crude pottery, a few beads, and a bit of blue glass, but with nothing by which to date it. The general appearance, the aggregation of the houses, and the condition of the surrounding vegetation, suggest that the site is at least as old as Khadaluk.

Farther west, the ruins of Uzun, Tetti, and Ulugh Mazar proved to be more extensive than appears from previous explorations. From the shrine of Lachinata, for 5 miles to the northwest to Ulugh Mazar, and thence 6 miles farther to the northeast, I found abundant pottery. There were also other relics of human occupation, including the traces of a mud-house, the straw of an old threshing-floor, and even the characteristic pattern of the ditches of ancient melon-fields. The en-



RUINS OF THE MIL-I-KASIMABAD, NEAR ZAHIDAN, AT SEYISTAN

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

tire appearance was such as to suggest that the site was not abandoned till a later date than Khadaluik. The pottery also pointed to the same conclusion, for, unlike that of more ancient sites, it was wheel made, the ornamental designs were drawn in curves with a stick of several points, and one bit had a green glaze. This conclusion is confirmed by the historic records of the Mohammedan conquest, and by some coins of the XII and XIII centuries, which Stein found at Ulugh Mazar. It appears that at the time of the Mohammedan conquest, and later, not only was Chira inhabited much as it is to-day, as is proved by early Mohammedan records, but that here, 12 miles to the north, along the line where the Chira river would flow if it were large enough, an equally large area, about 6 miles by 8 in size, was also densely populated. * * *

Thus it appears that about 1000 A. D., not only was the total population supported by the rivers larger than it now is, but the streams flowed through the modern villages, where their water is at present entirely consumed, and reached places like Ulugh Mazar, 10 or 15 miles farther north. This could happen only if the rivers were decidedly and permanently larger than now. There has been no diversion of the upper waters of the rivers except in the insignificant and easily preventable case of a small part of the Ak-Sai or Dumuka River; and there is not the slightest evidence that the irrigation system of the past was better than that of to-day. The true cause of the diminution of the water supply appears to be that the climate has changed.

It is proverbially unsafe to place much reliance upon legends. Students, however, are more and more recognizing that legendary stories contain a kernel of truth, which can be detected by comparing scientific facts with those details of the stories which would be least likely to be the product of imagination. Therefore, the local legend of the destruction of Kenan or Ulugh Mazar is worth recording. According to Ismail Beg, and the people of Malakalagan, a holy Mohammedan priest came to Kenan one day, long after the driving out of the former Buddhist inhabitants, and found no one at home. Men, women, and children had all gone out to work on the canals. The holy man was hungry and tired. Being accustomed to live on the fat of the land, he was irritated at finding the houses shut and

empty. He offered a prayer, which can hardly be supposed to have been pious, and began to turn a hand-mill standing in a courtyard, whereupon sand rained down from heaven. It ceased to fall when the troubled villagers, having seen it from afar, came hastening home and supplied the good man's wants. Nevertheless, the visitation proved fatal. From that time onward the water supply decreased, until at last the people of both Lachinata and Kenan abandoned their houses and fields, and moved to old Dumuka and Ponak, which had remained uninhabited since the Buddhist inhabitants fled northward across the desert. A similar legend is found in many other places in Turkestan, apparently because similar events occurred. The rain of sand is often spoken of as if it were the cause of the abandonment of ancient towns. I do not think so, however, because extended observation has convinced me that sand rarely encroaches upon a region until after a decrease in the water supply has caused the death of vegetation. In the Kenan legend it is distinctly stated that the amount of water diminished. The villagers said to me, "You see, what happened to Kenan long ago was like what happened to Dumuka in the days of our fathers. The river dried up."

One other quotation from Mr. Huntington's book will have to suffice to show the evidence of climatic change and its wide effect on the history and present civilization of Central Asia. In the arid Lop basin, the underground water is so saline that even to-day many tracts cultivated to, the present time are being given up as unsuitable for raising the scanty vegetation needed for the flocks of a few villagers. Concerning the region near Niya, Mr. Huntington states:

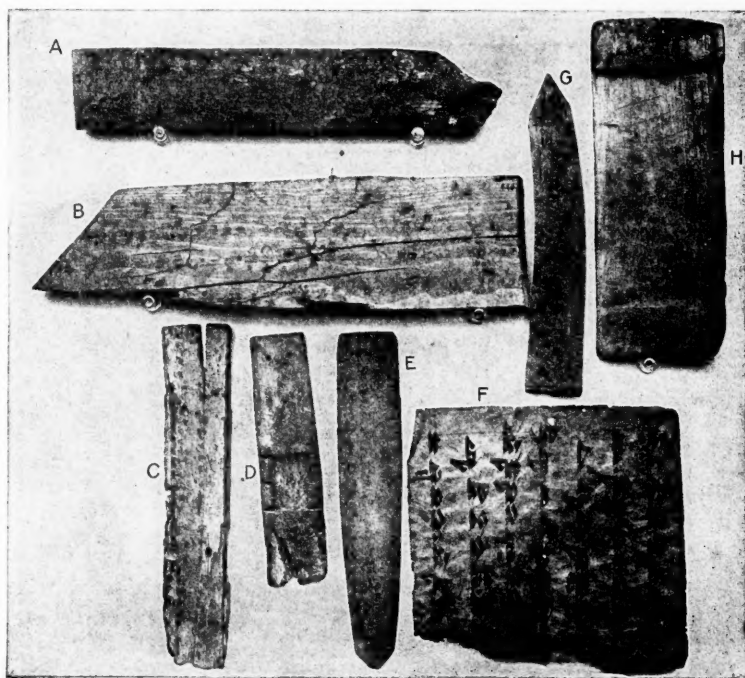
In ancient times conditions were very different. Fifty-seven miles due north of Niya, and 7 miles from the shrine, at the point where the largest floods disappear in the sand and the most northern living populars are found, we came upon the southern houses of an ancient town. Stein believes it to have been abandoned about 300 A. D. The remnants of the town consist of sites strewn with pottery, the remains of orchards, full of fruit-trees, and the white poplar, a "stupa" or Buddhist shrine of sun-dried brick, and the beams and lower walls of ancient houses, of which I counted 116. The town was large and prosperous. It was inhabited for a long time, as appears from the nature of the ruins, and the size of the trees. Its date is known from coins, and from many documents in the Kharosthi tongue. These are written upon wood, and are found in the various forms shown in the [accompanying] illustrations. Accounts, official orders, memoranda, and letters were written upon strips of wood of various carefully defined shapes. Data to be kept for future reference were recorded on strips like A, E, G, I, and L, which were filed away in rows, or were hung upon strings run through the holes at the pointed ends. The most interesting specimens which I found are C and D, parts of two letters. The communication was written upon the concave side of a strip such as C; and upon the convex side of a complementary strip of exactly the same size. The two were then placed face to face, so that the writing of both was concealed. Next, the address was written upon the outside of the concave sheet of the unique letter. Finally, a string was run through a hole in the concave sheet, and brought around through slots to a square depression such as that of D in the convex sheet. There it was sealed with clay, and stamped with a seal like those of the illustrations on the cover of this volume, and was ready for the postman. * * *

Far out in the sand, 6 miles beyond the most remote ruins, I found some bits of slag from furnaces, and two mealing-stones. * * * The guide, old Abdullah, had brought us to see some sort of brick fire-place which he had discovered when he visited the place a year before on a treasure hunt. He described the location with great precision, and led us to a spot where we found traces of his camp, but he could not find the fire-place. We searched in all direc-

tions for two hours; and while he was away, out of sight, I found the stones and the slag, which convinced me that the man had not been lying. * * *

The stones and slag which we found, apparently belonged to a time more ancient than the ruined houses. * * * It is possible that it represents a town more ancient than the Niya of the Kharosthi documents, or at least the part of a single town which was abandoned at a very early date, just as Rawak was abandoned before Dandan-Uilik.

The condition of the vegetation agrees closely with that of the ruins. To the end of the present flood channel it is vigorous; a little farther out in the desert among the upper ruins, the great majority of the poplars are dead, but retain their branches, and the half-dead tamarisks form mounds 10 or 20 ft. high; among the main ruins the poplars have been reduced to mere trunks with few or no branches.

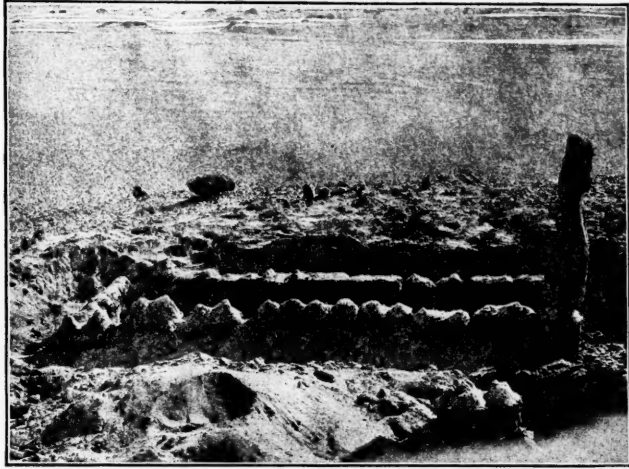


A, E, G, H, DOCUMENTS ON WOOD FROM THE NIYA RIVER SITE. B, INSCRIBED AND PAINTED BOARD FROM KHADALUCK. C, D, WOODEN LETTERS (EPISTLES) FROM THE NIYA RIVER. F, MANUSCRIPT FROM KHADALUCK.

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

and the tamarisks are largely dead, although a few still survive on mounds 30 ft. high; and finally, from the area of finely comminuted pottery to and beyond the meal-stones, the poplars are mere stumps 5 or 6 ft. high, or have been broken off by the wind even with the ground, and the tamarisks have practically all perished, after, in some cases, forming mounds 50 or 60 ft. high.

In concluding the chapter on *Keriya and Niya*, Mr. Huntington says:



HALF-OPENED ANCIENT GRAVE OF POPLAR POSTS ON THE EDGE OF THE
ZONE OF GRAVEL, NEAR THE KURUK DARIYA

From *The Pulse of Asia*, Courtesy of Houghton, Mifflin & Co.

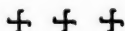
If we suppose that the climate of Central Asia has grown more arid during the period covered by history, all the difficulties [of explaining the abandonment of these cities] disappear. Under less arid conditions, the Niya River would not only be larger, but one or two small streams, which now wither to nothing in the desert to the east, would join it below the modern oasis. The water would be much more free from salt, for a relatively small portion would flow underground. As aridity increased, outlying settlements would be abandoned in the order of their remoteness, and the vegetation around them would gradually die. When the remoter oasis had been deserted, it may have happened that the Niyang of Hwen Tsiang persisted for many centuries on the site of modern Niya. Finally, before the time of Marco Polo, 1295 A. D., it, too, must have decayed and vanished, perhaps, because of slowly increasing salinity which gradually ruined the fields, as it is now doing once more, after their recovery during a long period of rest. It is, perhaps, not insignificant that in one of the wooden documents found by Stein in the main ruins, "we read that all the 'Shodhagas' and 'Drangadaras,' evidently local officials of the district, are complaining of the want of water."

We reproduce a cut of an ancient grave pictured by Mr. Huntington, which is of special interest because of the crude female figure carved in wood which stands at the head of the grave. This grave is made of poplar posts and stands on the edge of the zone of gravel, near the Kuruk Dariya. This carved female figure calls to mind the large number of carved female figures which are found in connection with ancient graves in Southern Russia, as described by Vladimir Riedel, in *RECORDS OF THE PAST*, Volume V, pages 35 to 39.

The few fragments of archaeological and historical matter, which we have quoted or referred to, give only a slight idea as to the character of the book. The anthropologist will find an enormous amount of valuable information, and to the student of geography, physiog-

raphy, and climatology it will read like a novel. However, it is not necessary that you be a student of any of these special lines of research in order to find the volume full of interest, for it is specially adapted to the needs of the general intelligent reading public, to whom we gladly recommend it.

FREDERICK BENNETT WRIGHT.



PALESTINE EXPLORATION FUND

AT GEZER Mr. Macalister has found a second "high place," having standing stones like the first, and near this he has found a foundation sacrifice. The stones stand in a row 44 ft. long. The largest is about 18 in. square and over 7 ft. high. The sacrifice was found in a small pit lined with potsherds. Inside were found a few sheep's bones, the leg-bone of a cow, and the head of a little girl about 2 years old. It is clear that we shall have ere long several "high places" to study in different parts of the country, and at Gezer the fact of infant sacrifice has been fully demonstrated. In both these respects the Scriptures are proved to be true after waiting so long for verification.

Mr. Macalister also reports the discovery of a seal, and the old Hebrew letters on it are plain, but the name is not yet certainly read. A new form of the letter *Teth* is on the seal, which occurs on a jar handle. The most important object in this report is a tablet of the zodiac, and much study will be required to bring out all its details. A Roman bath adds a new chapter to the history, which must sometime be written to tell the whole story of Gezer from its beginning to the Crusades.

Professor Sellin made a fortunate beginning at Jericho, and deep interest will be felt in the excavation of that place. It is singular that he found at once several clay tablets made ready for writing, but not written upon. Having so well entered upon his work he must cease for a time in order to raise needed money. This seems too bad when a firman is running. Our organization has so far been free from such a loss of time and opportunity.

While at Jerusalem Mr. Macalister studied an interesting mosaic near the Protestant cemetery. It contains no inscription, but shows very beautiful work.

The discussion of Zion continues. It seems that there is no doubt that the Jews identified Zion with the temple hill, and how the name came in modern times to be fastened on the western hill is a question not yet solved. But may not the name have been originally attached to it and only transferred temporarily to Moriah in Hebrew poetry, which pictured the temple as a kind of citadel?

THEODORE F. WRIGHT,

Honorary U. S. Secretary.

42 Quincy Street, Cambridge, Mass.

BOOK REVIEWS

THE HISTORY OF BABYLONIA AND ASSYRIA*

DURING the last few years the writings of Dr. Hugo Winckler, of the University of Berlin, have been much discussed by the archæologists and clergy of this country, so that, although many have read of, but few have actually read his writings on the history of Babylonia and Assyria, and the relation of Biblical history thereto. Under these circumstances it is especially fortunate that we have available an English translation of his book *The History of Babylonia and Assyria*. We are indebted for this translation to Dr. James A. Craig, of the University of Michigan, who has also added many important notes.

Doctor Winckler has shown good judgment in the treatment of this subject, having condensed the results of the various Oriental excavators into a single volume without cumbering it with a mass of detail which, although important to the Assyriologist, would pall on any but a specialist in this subject. In some cases, possibly, he has carried this too far and omitted reasons for his statements which even a wayfaring man would like to know.

The history of Babylonia is traced from the first peoples of this region of whom we have any knowledge—the Sumerians—to the fall of Babylonia. Of the Sumerians we know almost nothing except their language. However, as they were the “inventors of the cuneiform writing and the originators of Babylonian culture,” their importance is evident. “For long after the Sumerian ceased to be a spoken language, when the most varied peoples had settled in the Babylonian plain, and had passed again in turn from the stage of its history, as the old Sumerians themselves had; when the rôles of the different Semitic peoples were ended, when Persians, Macedonians, and Parthians still ruled there—almost to the beginning of the Christian era—the Sumerian language continued to be cultivated in Babylonia in connection with the sacred cult. * * * Inscriptions and religious texts in the Sumerian language have descended to us from the IV millenium B. C.”

He considers that in 3000 B. C. Babylonia reached the zenith of her development, but of this earlier period we know almost nothing. From this time on, however, we are able to trace a fairly connected history, although there are many gaps to be filled and much additional information is still needed. Most of our knowledge is drawn from “royal that is official reports,” and these are very unsatisfactory.

**The History of Babylonia and Assyria*, by Hugo Winckler, Ph.D. Translated by James Alexander Craig, Ph.D., pp. xii, 352. Map. Charles Scribner's Sons, New York.

for "in these the king does everything, even when he is no more than a puppet in the hands of his officials."

The most interesting chapter of the book, at least to the majority of people, will be that on the *Historical Retrospect and Outlook*, which closes the first division of the book, that on Babylonia. The spiritual side of the Babylonians, as discussed in that part of this chapter devoted to religion, is worthy of careful consideration, even though his conclusions may not seem satisfactory. It is difficult enough to gain a correct idea of the true religious beliefs of the present generation, but here we have to study this intangible subject from fragmentary records left by either the priesthood or the kings.

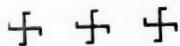
For the next division of the book—Assyria—we find that there is much more available material and more detailed information, for, as he states, the "rise of Assyria took place in a time upon which the full light of history falls, or which can be illuminated without difficulty by the excavations."

The fall of Babylonia was due to the mercenary character of its army, which was the only force which held the heterogeneous parts of the country together. There was no national life or feeling. Assyria's power, on the other hand, "lay in her army and her people." These worked together. When she became "Babylonianized and was ruled over by a military and priestly cast, supported by mercenary troops, and without a national population, she was doomed to disappear." By the time of Sargon II, 722 to 705 B. C., Assyria was held together solely by "mercenary troops gathered from all lands and provinces." These were loyal to the king as long as money and plunder were abundant.

From this time on the decline was rapid until the fall, which was followed by the New Babylonian-Chaldean Kingdom, which lasted but a short time, and is briefly treated in the last division of the volume.

The full index to this work is a very important feature, which makes the vast amount of material compressed into the book easily available. Also the short summaries of the kings and the dates of their reigns, so far as our knowledge will permit at the present time, which are scattered through the volume, add greatly to its value.

FREDERICK BENNETT WRIGHT.



TEMPLE OF LESESEBI.—It is reported that Prof. J. H. Breasted, of the University of Chicago, has discovered a structure called the Temple of Lesesebi. It lies in Nubia, at the foot of the Third Cataract of the Nile, a region isolated by cataracts and wide plains.

OUTLINES OF THE HISTORY OF PAINTING*

MANY books on the paintings of the great masters, and the art of different eras, have appeared in the past, but no concise, comprehensive work, such as this volume by Dr. Edmund von Mach, entitled *Outlines of the History of Painting from 1200-1900 A. D.* In fact, the history of painting from the earliest time is considered, for the *Introduction* is a brief statement of the development, or rather lack of development, of painting as an art prior to 1200. Our knowledge of the earliest paintings, aside from those on vases, which more properly belong to ceramaics, and "colored drawings," such as we find in Egypt, is very fragmentary. The development of the art, as we now understand the term, can truly be said to have begun in the XII century A. D. Doctor von Mach aptly remarks that "if we were to speak of art, not according to periods of history—Egyptian, Greek, early Christian, Renaissance, and so forth—but according to natural divisions, we should call the first the period when men drew according to their thoughts, and the second period when they painted according to their vision. * * * Roughly speaking, the first period comprises antiquity and the Middle Ages. The second period begins with the Renaissance in Italy and enters into its latter stage during the XIX century."

The book is divided into three parts, of which the first is devoted to tables giving the names and dates of birth and death of the great painters and the schools to which they belong. These are arranged by countries, from Italy to China and Japan. The second part is devoted to a list of artists and a pronouncing vocabulary, with cross references to the tables of Part I, thus making these two divisions of the book doubly valuable and convenient.

Important as these tables are to any who anticipate visiting Europe, where they will wish to visit the best of the art galleries, the more general interest in the book will center in the last part, where Doctor von Mach gives a brief but interesting "account of the history of painting," in the different European countries, America and Japan. Here are mentioned the great moving spirits in the development of painting in the various countries and the principles and characteristics of these painters, which they infused not only into their own work, but into the very art life of their country and age.

Doctor von Mach is very happy in his choice of words to express briefly his ideas in a most pointed manner. As an example, what could better express the general characteristics of Rubens than his remark that: "A consumptive Venus à la Botticelli is inconceivable in

**Outlines of the History of Painting from 1200-1900 A. D.* By Edmund von Mach, Ph.D. Boston. Ginn & Co. 8 vo. 186 pp., folded map, and tables.

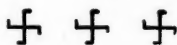
connection with Rubens. The idea of sickness did not exist in his world of thoughts, except in his first Italian period, where it may have crept in at times as the result of unconscious imitation?"

The broad view of the subject taken by Doctor von Mach is shown in his last chapter on Chinese and Japanese painting. Although a high position has always been given these countries in regard to wood and ivory carving, beautiful vases, and delicate and artistic blending of colors, yet as countries whose paintings and painters were worthy of serious consideration, few art critics, at least until recently, have thought. He says:

Japanese painting is an inspiration to the foreigner. It has had its periods of greatness and of decline, and during the latter the conventionality of the native style has aided in making its standard of art exceptionally low. In the finest periods, however, the great successes of the masters have demonstrated that the character, both of the man and his conceptions are of greater importance than the particular style which his traditions and environments place at his disposal. The greater the skill which an artist has the greater will be his art, provided his skill is accompanied by an equally exalted personality. No undeveloped man, even with supreme skill, can be a great artist.

Every one who is even casually interested in the subject of art will find the text of this volume full of interest, while the tables and map will always be valuable for reference.

FREDERICK BENNETT WRIGHT.



THE DISCOVERIES IN CRETE*

FREQUENT examination of maps, likewise of chronological tables, becomes a very necessary adjunct in pursuing the study of the progress of civilization and the development of mankind. A well-developed understanding of the geography and the physical conditions surrounding a locality will the more readily enable the student to properly group the essential conditions as they may be presented from the viewpoint of a writer upon archæological discoveries. This is particularly true when we take up Professor Burrow's recent work on the *Discoveries in Crete* and their bearing on the history of ancient civilization.

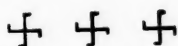
The work of excavation has been in progress on the Island of Crete for many years and the results have, within the past 6 years, become almost sensational at times. New material of the deepest archæological interest has been added to former discoveries at such a rapid rate that some such work as Professor Burrows has now given us was a necessity. His own estimate of the presentation which he makes of the subject may properly be given in his own language:

**The Discoveries in Crete and their bearing on the History of Ancient Civilisation.* By Ronald M. Burrows, Professor of Greek in the University College, Cardiff. With illustrations. New York: E. P. Dutton and Company, 1907. 8vo., 236 pp.

It is this help that the present book attempts to give, and the moment of its appearance, during a partial lull of excavation, is an opportune one. There is a chance to take breath and gather up the threads, with the possibility that the next month's spade-work will not put us out of date. It is written, as far as possible, in untechnical language, and does not expect its readers to know by instinct what is meant by a "Schnabelkanne," or a "Vase à étrier." It aims at giving a picture of Cretan civilization as a whole, and at presenting it in a manner that will make it alive and real. Reference, however, to the original publications have been given throughout, and it is hoped that the book may thus serve, not only as a general introduction to the subject, but also as a bibliographical guide to students who wish to pursue it seriously. Its main object is to give a clear and comprehensive account of where we stand, rather than to embody the writer's original research.

To summarize the work of this author would be likened to an effort to further condense a sentence already consisting of but 3 words, and to select from its pages some of his most interesting deductions would afford so bewildering an array that such an attempt could only result in presenting the whole work page by page.

THOMAS FORSYTHE NELSON.



EDITORIAL NOTES

BRONZE HEAD FROM NAMUR, BELGIUM.—Near Namur, Belgium, a curious bronze head was recently found. It is a man's head with a curled beard, and the ears of a he-goat, one of which is turned toward the face. It is probably Gallo-Roman work of the II or III century A. D. It is thought to be the only male Roman head with long hair.

DOCTOR KYLE IN EGYPT.—Dr. M. G. Kyle, one of our consulting editors, sails from New York, December 7, for Naples. He will first visit Rome, where he will see some of the recent archæological work. Later, he expects to go to Egypt for two months of Egyptological research. We expect notes from him concerning his work during the winter. His address will be, Care of the American Mission, Cairo, Egypt.

PORTRAIT HEAD OF AUGUSTUS.—The most important addition to the Department of Classical Art in the Boston Museum of Fine Arts, during 1906, is a fine marble head of Augustus. A large part of the upper left side of the head is missing. It is an unusually characteristic portrait. The modeling of the face is realistic, and thus in contrast with the idealized head of Augustus from the Despuig collection already in the museum.

EXCAVATIONS NEAR BASEL, SWITZERLAND.—Excavations have recently been carried on in the Roman fort at Kaiser-augst, near Basel, Switzerland. The western gate, fragments of arches, and a drain were discovered. At the time of the invasion of Alemanni (354 and 357 A. D.), the fort was abandoned, but was re-fortified under Julian and Valentinian I, to be finally abandoned in 402 A. D.

VIA TRIUMPHALIS.—North of the Vatican a section of the Via Triumphalis has been found in excellent condition. Near by a large sarcophagus of the IV century has been uncovered. The decoration of the front is an attempt to adapt the grandiose arabesques of a temple frieze. An inscription on another sarcophagus shows that the senate still had its *scribae* in the IV century. Older tombs and inscriptions have been found beside the Via Triumphalis.

A ROMAN MONUMENT.—A hill near Nice, France, which in Roman times lay between the Via Aurelia and the sea, was the object of investigation during 1906. Sculptured stones, apparently part of a gateway, pottery, and a few coins of the I, III, IV centuries A. D., were found. A close study of the Gallic arms on the sculptures leads to the conclusion that the monument was erected during the reign of Augustus.

ADDITIONS TO THE MUSEUM AT SYRACUSE.—Among the additions to the Archæological Museum at Syracuse, Sicily, is a terra-cotta equestrian figure of the early V century, which was part of an acroterion, a flying Nike of the V century, and a curious *xoanon*; the two latter are unique among Sicilian terra-cottas. One of the vases added is a black-figured cylix, with youths on foot and horseback, and a sphinx to which clings a man in the position of Odysseus, escaping from the cave of Polyphemus.

ROMAN CAMPS.—During the years 1903-1906 the Provincial Museum at Bonn carried on work chiefly at Remagen and the "Alteburg," near Cologne. Both were *castella*, built in the time of Tiberius, with palisaded earth wall and trenches, and rebuilt in stone about 70 A. D. The Alteburg was abandoned about 270 A. D., and the other included in a larger stone wall. These belong to a system of defensive works. Excavations on the Fürstenburg, near Xanten, led to the discovery of a Roman fort like that at Remagen.

OBJECTS OF THE VIKING PERIOD FOUND IN YORK.—During the autumn of 1906, there were found at York, England, a few yards from the left bank of the Ouse, certain objects which are considered as belonging to the Viking period. Some of these were such as had not been previously reported in England, the most

interesting being a brass chape of a sword scabbard, showing an open zoöomorphic interlacing design ending in a conventionalized animal head, which fastened the chape to the material of the scabbard.

ROMAN REMAINS AT NUMANTIA, SPAIN.—At Numantia, during 1906, further work revealed evidences of Scipio's blockade of the Iberian city, previously discovered. Five of the 7 forts mentioned by Appian were found, as well as camps and parts of the wall of circumvallation. The positions seem to have been chosen and fortified for defensive purposes. The barracks and other buildings were made of stone. No other such military structures are known previous to the permanent camps of imperial times around Novæsium and Carnuntum.

MOUND BELONGING TO THE BRONZE AGE.—The Somersetshire Archæological Society began, in April, excavations at the Wick Barrow in Stoke Courcy. The work so far seems to show that the mound belongs to the bronze age, for it contains two fairly perfect burials with pottery characteristic of that date. Below these is a curious wall, the use of which is not yet apparent. There was also at least one interment, seemingly unconnected with those of the bronze age. It is certain that the Danish chieftain, Hubba, was not buried in this mound.

GREEK TEMPLE AT PRINIAS IN CRETE.—Remains of an archaic Greek Temple are reported from Crete. The east side was surmounted by a pediment containing statues, seemingly a procession of warriors carrying shields and lances. Fragments of votive figures and cult images were also found. Among these is a figure of Rhea, seated on a throne. The base of the throne, which was also uncovered, is ornamented with representations in relief of lions and stags. Arrow and lance-heads, knives, and double-axes were dug up on the same site.

ANTIQUITIES IN SANTO DOMINGO.—President Morales, of the Republic of Santo Domingo, has taken steps for the preservation of the archæological objects in that country, and for the establishment of a national museum for that purpose. He declares that as the archæological objects found on their territory pertain to the aboriginal inhabitants of the Republic, they properly belong to the Republic as a whole. No private collections are to be allowed in the future, and no private collections previously made are to be permitted to leave the country.

ROMAN CITY OF CORSTOPITUM, ENGLAND.—Excavations in this site, near Corbridge, on the north bank of the Tyne, revealed a large formidable ditch, internal buildings, which can be traced with remarkable completeness, the walls in places standing 6

ft. high near the ditch. Traces of the bridge over the Tyne were also found. There was a splendid example of hypocaust, many of the pillars standing to the original height. These were of stone with pottery bases. A drain, in excellent state of preservation, and a number of coins of the III and IV centuries A. D. were also unearthed.

A NEW STATUE OF A NIOBID AT ROME.—In June, 1906, a perfectly preserved statue in Greek marble of one of the daughters of Niobe was found in the Gardens of Sallust. It had been concealed in an underground gallery, southeast of the Nymphaeum, close to the northern angle of the Servian Wall. G. E. Rizzo thinks that this statue probably belongs with the Niobids in Copenhagen, but that instead of being a Greek original of the V century it is the work of an eclectic sculptor about the I century B. C. The treatment suggests the so-called Venus of the Esquiline. P. Gauckler suggests that it is the work of a Hellenistic sculptor in Asia Minor.

FINDS AT ROME.—Reports from Rome state that at the foot of the Tarpeian rock a statue of an old woman carrying a basket has been found. It is realistic in style, belonging, probably, to the same period as the statue of the old woman with the water-jug, in the Capitoline Museum. It seems likely that such statues as these were used to adorn the market halls in the neighborhood. On the slopes of the Palatine, facing the Circus Maximus, remains of a temple of the VI century B. C., dedicated to Victory, were brought to light under the direction of Prof. Dante Vaglieri. Near Santa Maria della Vittoria remains of the oldest walls of Rome have been discovered.

EGYPTIAN WORK OF THE METROPOLITAN MUSEUM.—Mr. A. M. Lithgoe, of the Metropolitan Museum, has undertaken excavations at Lisht, where are the pyramids of Amenemhat I and Useratesen I, of the XII dynasty. His work has been on the east front of the former pyramid. A layer of the remains of the Roman period has been removed, and the remains of the pyramid temple partly uncovered, as well as the mastaba of Antef-aker, an important official of that time. The only royal stele yet found is the "false door," or offering stele of the temple. The temple altar and many architectural remains and inscriptions have also been recovered. The temple was evidently restored at some time.

NAVAHO DICTIONARY.—The Franciscan Fathers at St. Michaels, Arizona, are preparing for publication a Dictionary of the Navaho language. It will contain a series of articles on Navaho religion, ceremonies, arts, and industries, each followed by a list of Navaho terms used in connection with it, and more or less detailed explanation. The work will include lists of Navaho names for persons, places, stars, plants, and animals. It might be called an ethnological dictionary. A limited edition is to be printed. Any desiring

to secure copies should write to Mr. Stewart Culin, Brooklyn Institute Museum, Eastern Parkway, Brooklyn, N. Y., for further information.

AQUEDUCT NEAR TIMGAD.—During the last few years Timgad, in Algeria, has been attracting considerable attention since the French archæologists have been conducting extensive excavations. Museums have been opened in Carthage and Tunis, where the smaller objects discovered in North Africa are preserved. The Roman city



AN AQUEDUCT NEAR TIMGAD, CONSTRUCTED BY THE ROMANS AND
RESTORED BY THE ARABS

Courtesy of The Scientific American

of Timgad is found to have been laid out carefully with streets intersecting at right angles and houses usually separated by open spaces. Like all Roman cities it was well supplied with water and one of the old aqueducts, having been restored by the Arabs, still stands in good condition, as is shown in the accompanying illustration.

ROMAN MONUMENT IN AUSTRIA.—During the last few days of July some very interesting relics were discovered at Saifnitz, near Tarvis, in Austria, where excavations brought to light several portions of an old Roman monument. These formed a complete portion of a funeral monument about 12 ft. long. Half-length representations in *alto relievo* of a Roman and his wife are set in a niche

cut rectangularly and longitudinally from a large block of stone. This rests on a step-shaped pedestal. The niche is covered by a gable-like roof ornamented on top with scroll work; the sides are decorated with reliefs. In front is an inscription in memory of the deceased, and the giver of the monument.

CROWN LANDS GIVEN BY THE PTOLEMIES.—A number of the Greek papyri from Egypt, translated in part I of *Papyrus grecs*, a volume edited by Pierre Jouguet, throw light on the tenure of Crown lands given to the Macedonian and Greek soldiers by the Ptolemies. Heretofore, it had been inferred that these gifts from the Crown did not become hereditary, but reverted to the king. This point has been in part cleared up by these papyri, which show that "upon the death of a 'lot-holder,' his land was taken up by the Crown, till the heir satisfied certain conditions within a stated time. It is not told us what these conditions were, except that the son must prove his descent."

PRE-ROMAN DISCOVERIES IN SPAIN.—Under the direction of M. Pierre Paris there have been found at Elché and Cerro de los Santos, in Spain, a number of pieces of sculpture of the pre-Roman period. Oriental and Greek influences were here blended with the native elements, thus producing work which, while showing Oriental elaboration of style, was executed with Greek perfection. The most important pieces yet found are an elaborately made bust from the stone of the region, a female statue and a head with a high tiara. The bust shows traces of color on the lips, head-dress, and draperies. The eyeballs are hollowed in order to receive an incrustation in imitation of the human eye. These, with others, have been removed to the Louvre at Paris.

TEMPLE OF MENTUHETEP AT DEIR EL-BAHARI.—In the course of the work carried on by the Egypt Exploration Fund, during 1906, the temple of Mentuhetep, of the XI dynasty, was further excavated. Back of a pyramid base, rising in a columned hall, there was found an open court with a colonnade, then a hypostyle hall, not yet completely excavated. In an open court previously discovered, a subterranean passage, 16.4 yds. long, was cleared. This ends in a room built of large granite blocks, in which is a large alabaster shrine. The shrine, now empty, seems to have been regarded as the dwelling place of the *Ka* of a king. There are evidences of offerings before it and a stele at the entrance of the passage refers to daily provision of food and drink for the cave of Mentuhetep.

DISCOVERIES AT CARTHAGE.—Rev. P. Delattre's work at Carthage has been rewarded by a number of exceedingly interesting discoveries. Among them are a number of sarcophagi with the

top cover sculptured in relief with life-sized figures, carved in marble and beautifully tinted. One of these, found at a depth of 25 ft., has a woman, in Greek style, executed on the cover. The flesh parts are highly polished, the eyes painted, and the hair gilded. Another sarcophagus bore the figure of a "person supposed to be a priest," with abundant hair, curling beard, and a long robe with short sleeves. M. Delattre found that, although the coloring on these sarcophagi was very bright when first found, it quickly faded on exposure to the light.

SURGICAL INSTRUMENTS IN GREEK AND ROMAN TIMES.—In a recent book by Dr. John Stewart Milne, on *Surgical Instruments in Greek and Roman Times*, he points out that surgeons in classical times were used to keen instruments, many of them being of the finest steel; in fact, he claims that it was difficult for ancient iron-founders not to turn out steel of the finest quality rather than iron, on account of the methods they employed.

The Romans were a clean-shaven race, and so must have had good instruments and skilful barbers. He shows that shaving and cutting the hair were formerly looked upon as important means of treatment in several diseases. The barber and the surgeon, therefore, acted in conjunction, and were in many cases identical, years before the advent of Christianity.

WORK IN WYOMING.—During the past summer Harlan I. Smith was able to begin investigations in Wyoming, part of the "vast neglected field for archæological research" in which he is endeavoring to interest the public. He visited many prehistoric stone quarries, some of which had not been known before. Many stone circles marking the site of tepees were noted by him. He thinks that these stones were used to hold down the skin covering of the tepee. Pictographs in red and black, as well as petroglyphs cut on the cliffs were noted, and in many cases photographed. Some represented horses, and others buffalo. True pottery he found only in rare instances, and these in the southern part of the state, without exception. Soapstone dishes occur especially in western Wyoming, some of them being of a type apparently unknown heretofore.

THE ORIGIN OF THE AINU.—Rev. John Batchelor, who has for 30 years made the Ainu his special study, considers their language to be Aryan. He no longer believes in the existence of a dwarfish pre-Ainu race of pit-dwellers. With other Japanese archæologists he now thinks that the Ainu themselves were pit-dwellers, and that they used pottery, paint, and flint knives, and lived in the Stone Age. They were conquered by a people, possibly of Semitic origin, who used metal and were otherwise well equipped for conquest. The struggle, however, lasted 2,000 years. Traces of the *casi*, or forts enclosed by

fences or embankments, used by the Ainu in defense against their conquerors, are found all over the Island of Yezo, as well as in northern Japan. This fact, together with the geographical nomenclature on both islands, points to the conclusion that the Ainu, speaking an Aryan language, once inhabited the whole archipelago.

BONES OF THE URUS, WITH FLINT FLAKES, FOUND IN ZEALAND.—The discovery of the bones of a urus, an extinct animal of the ox tribe, in connection with flint flakes, is interesting because of the light it throws on man's relation to this animal. These bones were found in a peat bog, in northwest Zealand. Certain of the bones are scarred; that the wounds were made by flint implements is clear because fragments of flint are imbedded in the scars. One scar was old, the bone having grown over the flint, but the other was fresh at the time of the death of the creature, probably being part of the wound which caused death. Urus bones had previously been found in small numbers in kitchen-middens of the older Stone Age, proving that man in some way caught this animal, possibly by use of pitfalls, but now it appears that sometimes, at least, he hunted him with flint implements.

NEW SCHOOL OF ARCHÆOLOGY AT MOSCOW.—The Russian Ministry of Education has sanctioned the founding of an Institute of Archæology and Archæography at Moscow. It is to rank as a university, open to graduates of Russian or foreign universities. It aims to prepare qualified archæologists and archæographers, or persons skilled in the preservation and interpretation of historical archives, libraries, public and private, and the like valuable collections demanding special knowledge. The institute has the right to conduct its own affairs, subject, however, to the veto of the Minister of Education under certain circumstances. The last year of the three in the course must be spent in practical work, either in Russia or elsewhere. The degrees given will be Doctor of Archæology or Doctor of Archæography, according to the studies pursued. Some of the men connected with the institute are Doctor Uspensky (the director), Doctor Fleischer, Professor Grot, and Privat-Docent Visotsky, who is the secretary.

THE GROVE OF FURRINA.—In July, 1906, workmen discovered in the Villa Sciarra on the slopes of Janiculum, Italy, the grove of the old Roman nymph, Furrina. Several inscriptions, found in a semi-circular hollow, are dedications to Syrian gods, including Adadus, Jupiter Malegiabrudis (hitherto unknown), and others. A richly carved altar, 37 by 14.56 in., decorated with horned heads at the angles, is the principal object. It bears the most important inscription, written in Greek characters, which mentions Jupiter Ammon and the Sidonian Kypriis, as well as the Nymphæ Furrinæ. Be-

low the inscription, birds pecking fruit and heads of Erinnys form part of the decoration. This is the spot where Caius Gracchus died. At about 300 yards distant an inscription is recorded as found, which is sacred to Jupiter Heliopolitanus and Genio Forianarum. As this region was once occupied by Jews and Asiatics, probably some merchant owned the site and set up this and other altars dedicated to Oriental divinities. Two Greek pentameters indicate that a certain Gaionas built a fountain to supply water for the sacred rites.

WORK AT AKSUM.—More complete reports of the German work at Aksum in Abyssinia have been published in *Archäologischer Anzeiger*. Aksum was the capital of a Semitic trading colony, so the early monoliths and inscriptions are of Sabæan and Æthiopian, not Egyptian origin. In the I century A. D. Greek influence came in. Later, in the IV century, the kingdom became Christian to be overcome by Mohammedans in the XVI century. The characteristic pagan remains are monolithic stelæ and honorary stone thrones with inscribed slabs. Among the monolithic stelæ and obelisks of many types and sizes, some standing and some lying down, is one taller than the tallest known Egyptian obelisk. This is one of a group carved in relief to represent towers of several stories, with windows and doors in exact imitation of the native architecture combining wood and stone. These structures have wooden beams running through the stone for the sake of stability. The church of the monastery of Debra Damo, built on an isolated rock, accessible only by rope, is constructed on this plan, and contains the oldest timbers known to exist.

WORK OF THE BRITISH SCHOOL AT SPARTA.—At Sparta the British School has identified the site of the temple of Athena Chalkioikos by finding 3 roof tiles stamped with part of the name of that temple, and further by the discovery of bronze nails and fragments of bronze plates. Among the 10 bronze statuettes found, the finest is a V century representation of a trumpeter about 5 in. high. There are also bronze bells with votive inscriptions to Athena and two archaic inscriptions, one of them containing 52 lines referring to athletic victories.

Work has also been continued on the site of the sanctuary of Artemis Orthia, where two buildings have been excavated, a temple built probably in the VI century B. C., and lasting until the III century A. D., and a Roman theater built about the end of the II century A. D. The facade of the temple was included in the theater, occupying the position of the stage building. In the orchestral area were found the remains of the altar built in the same period as the theater. Beneath this altar were blocks belonging to the altar of Hellenistic times, and with them burned refuse from sacrifices. From the ex-

cavations it is clear that the cult of Orthia began in the earliest times with a large altar, which was covered up when the temple was destroyed in the VI century B. C., and a new one built at a little distance. In Hellenistic times this temple was rebuilt and lasted on the same site until the end of paganism.

ABORIGINAL ROCK-CHIPPINGS IN SOUTH AFRICA.—

An interesting series of rock-chippings which have been discovered on the Farm Blauwboschdrift, Herbert, South Africa, is described by Mr. J. P. Johnson, in *Man*, for October. The discovery was made by Mr. Johnson and Professor Young in 1905. In one case the aboriginal artists had "selected a glacially-polished surface on which to chip their pictures of man and beast." "The figures were confined to the upper half of the slab, and numbered close on 200." Most of the subjects are animals, but there is one remarkable exception—the figure of a plough. There are three horsemen of conventional design, and three "humped oxen," and a few purely fanciful animals. "The only probably wild animals seem to be the ostrich, hyæna, which is very faithfully depicted, considering the limitations of this kind of work, and a bird of uncertain species."

"These chippings have weathered to the same color as the rest of the rock surface. On the same slab there are one or two figures, which are evidently much more recent. In them the chippings are comparatively fresh, and show up well against the dark background. They are larger than the originals, of which they are imitations, and are markedly inferior in execution. None of the chippings, however, can be ancient. Neither the plough nor the horsemen are compatible with any antiquity.

"Close by is a rock-shelter where the artists probably lived. It is situated in a low cliff of boulder-shale, and has been excavated in a soft patch, immediately under the hard layer of conglomerate which there forms the top. It is very likely that this was originally a small natural shelter, which was afterwards artificially enlarged. There can, however, be no doubt that the whole of the rock-shelter as it now stands was artificially hollowed out. It was formerly much bigger, a considerable portion of the roof at the front having since fallen down. The entrance is choked with slabs and pieces of the conglomerate. There was, unfortunately, no time to make any excavations in search of the stone implements which are almost certain to be there." On a slope about half a mile away, however, Mr. Johnson picked up two almond-shaped palæoliths.

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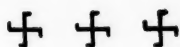
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